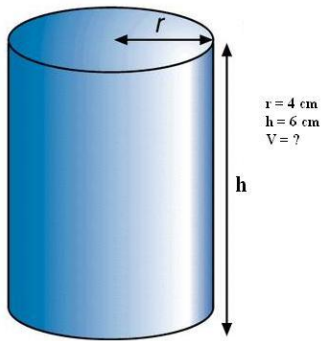
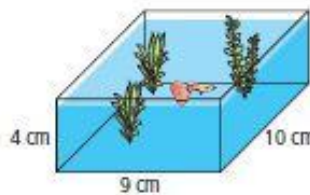
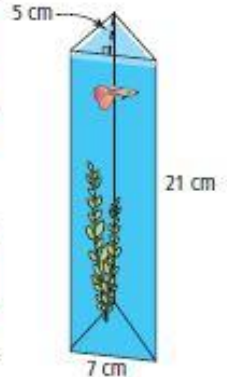
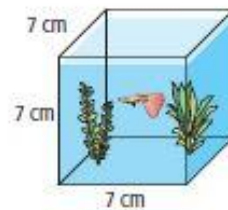
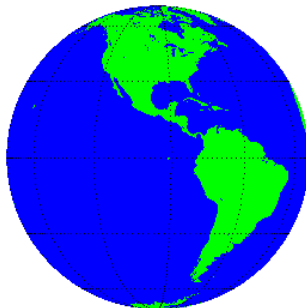
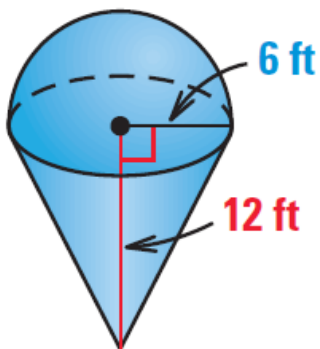
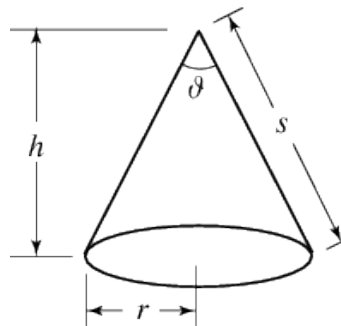
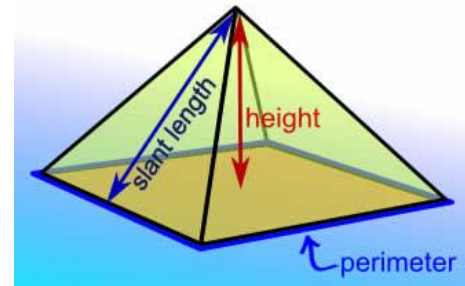
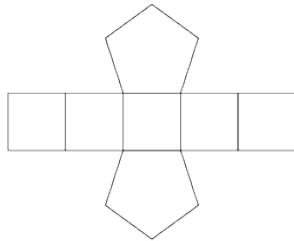
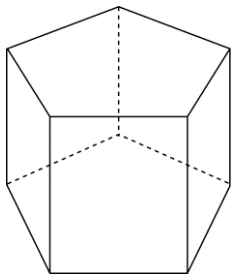


SURFACE AREA AND VOLUME



By Mr. Singh



Name: _____

Score: _____ / 205 = _____

1. Define the following terms and draw a diagram to elaborate. (8 points. 1)

a. Polyhedron	b. Face	c. Vertex	d. Edge
e. Cross section	f. Lateral Area	g. Surface Area	h. Volume

2. Decide if the following examples are of surface area or volume. (8 points, 0.5 point each)

- | | |
|---|-------|
| a) Amount of wrapping paper needed to wrap a present. | _____ |
| b) Amount of water needed to fill a fish tank. | _____ |
| c) Farmer is going to paint the outside of a barn. | _____ |
| d) The amount of paint needed to paint the outside of a barn. | _____ |
| e) Amount of wood needed to make a garden bed. | _____ |
| f) Amount of soil needed to fill a garden bed. | _____ |
| g) Amount of gasoline a car tank can hold. | _____ |
| h) Camper is going to build a tent for a fabric. | _____ |
| i) Scientist wants to figure out the percentage of land on earth. | _____ |
| j) Scientist wants to figure out amount of water in a certain pond. | _____ |

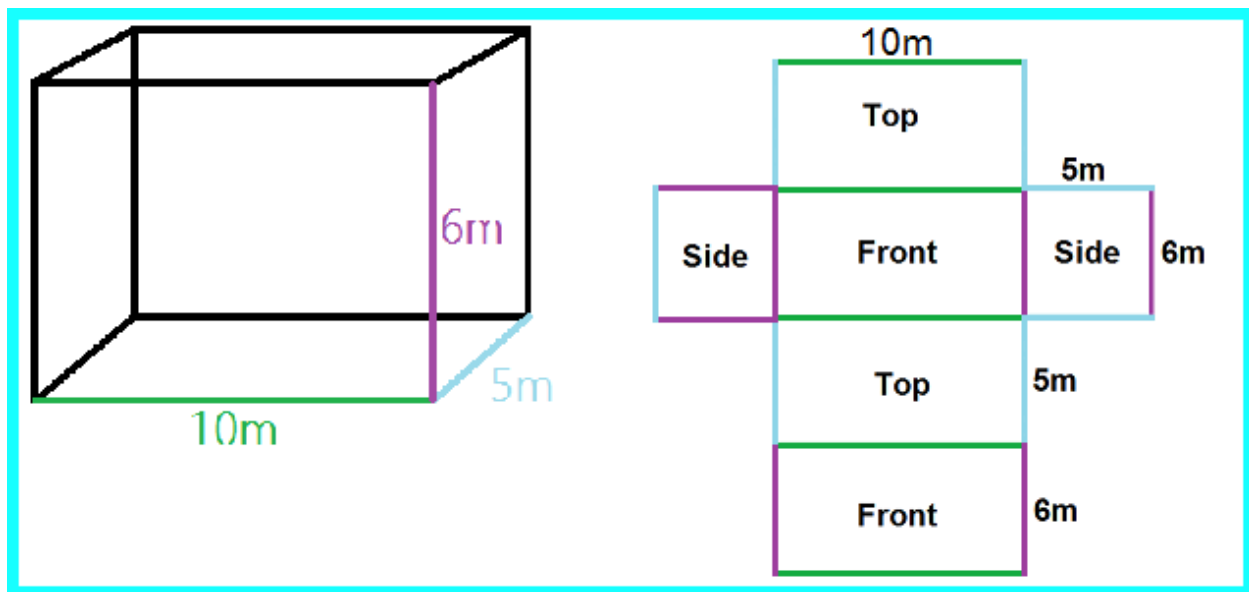
Write down an example of surface area and examples of volume.

- | | |
|-----------|---------------------|
| k) _____. | <u>Surface Area</u> |
| l) _____. | <u>Surface Area</u> |
| m) _____. | <u>Surface Area</u> |
| n) _____. | <u>Volume</u> |
| o) _____. | <u>Volume</u> |
| p) _____. | <u>Volume</u> |



Activity: Use a construction paper to construct a rectangular Prism. (4 points)

Material needed: Construction paper, ruler, scissor, tape (Use inches instead of meters)



3. Draw the following 3-dimensional solid and its net, and write down the correct formula identifying each variable in the formula. (11 points, 1 points each)

a. **Rectangular prism** (the bases are rectangle)

3 dimensional shape

Possible net (identify each face)

Identify the base

S.A.= _____

V= _____

b. **Triangular prism** (the bases are triangle)

3 dimensional shape

Possible net (identify each face)

Identify the base

S.A.= _____

V= _____

c. Pentagonal prism (the bases are pentagon)

3 dimensional shape

Possible net (identify each face)

Identify the base

S.A.= _____

V= _____

d. Hexagonal prisim (the bases are hexagonal)

3 dimensional shape

Possible net (identify each face)

Identify the base

S.A.= _____

V= _____

e. Right cylinder

3 dimensional shape

Possible net (identify each face)

Identify the base

S.A.= _____

V= _____

f. Oblique cylinder

3 dimensional shape

Possible net (identify each face)

Identify the base

S.A.= _____

V= _____

g. Pyramid with square base

3 dimensional shape

Possible net (identify each face)

Identify the base

S.A.= _____

V= _____

h. Pyramid with triangular base

3 dimensional shape

Possible net (identify each face)

Identify the base

S.A.= _____

V= _____

i. Right cone

3 dimensional shape

Possible net (identify each face)

Identify the base

S.A.= _____

V= _____

j. Oblique cone

3 dimensional shape

Possible net (identify each face)

Identify the base

S.A.= _____

V= _____

k. Sphere

3 dimensional shape

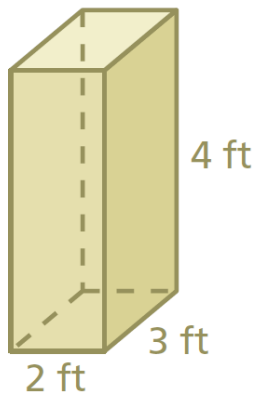
Possible net (identify each face)

Identify the base

S.A.= _____

V= _____

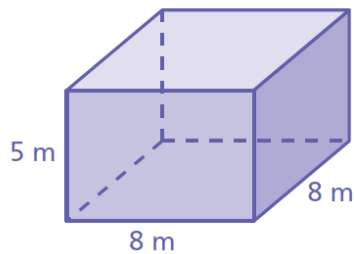
4. Find surface area and volume of prism using the correct formula. (40 points, 4 points each)



a.

SA = _____

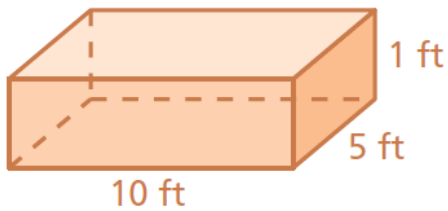
V = _____



b.

SA = _____

V = _____



c.

SA = _____

V = _____

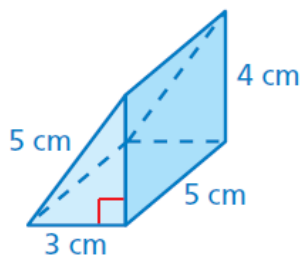


d.

SA = _____

V = _____

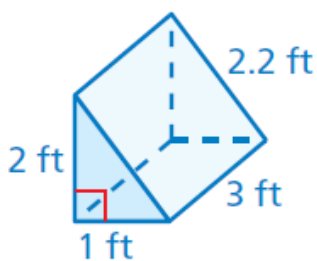
AQUARIUM A public library has an aquarium in the shape of a rectangular prism. The base is 6 feet by 2.5 feet. The height is 4 feet. How many square feet of glass were used to build the aquarium? (The top of the aquarium is open.)



e.

SA = _____

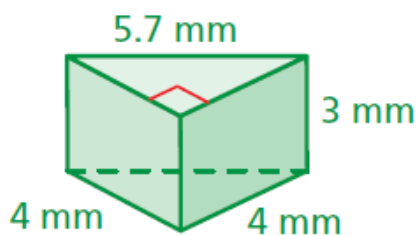
V = _____



f.

SA = _____

V = _____



g.

SA = _____

V = _____

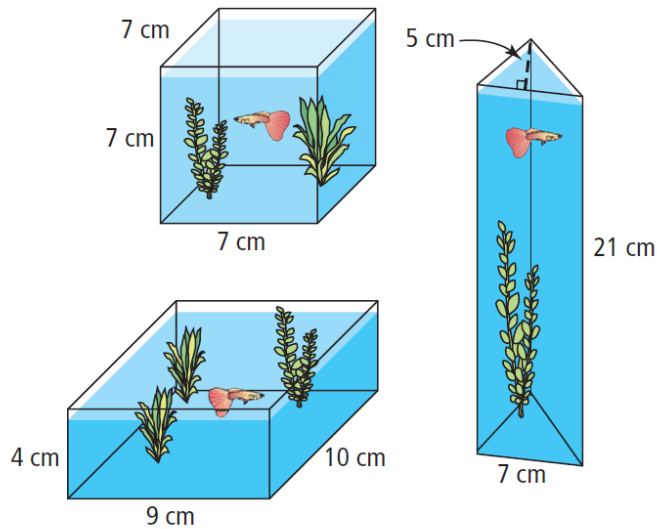


h.

SA = _____

V = _____

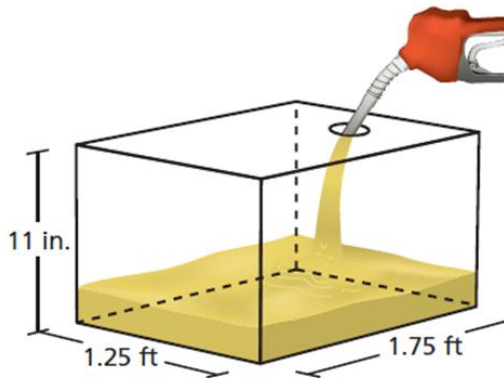
TENT What is the least amount of fabric needed to make the tent?



i.

Melissa has three glass vases. She wants to use one as a decorative fish tank for Harvey the guppy. Which will give Harvey the most water to swim in?

Answer: _____

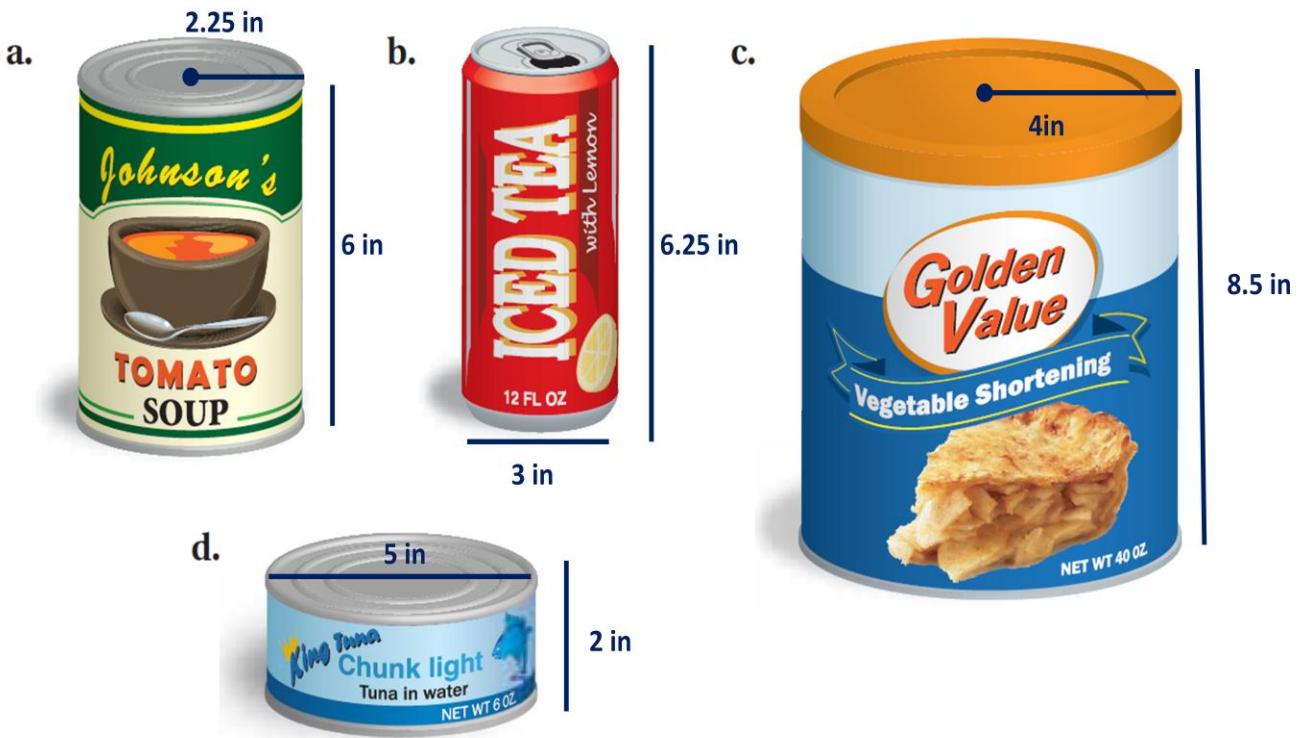


GAS TANK The gas tank is 20% full. Use the current price of gas in your community to find the cost to fill the tank. (1 gal = 231 in.³)

j.

Answer: _____

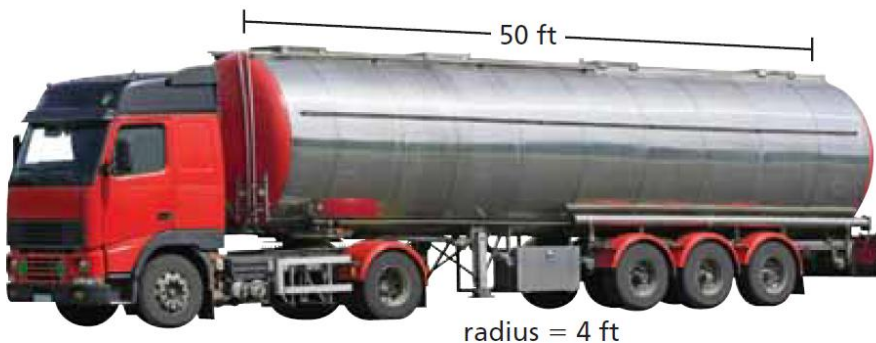
5. Find the surface area and volume of a cylinder (24 points, 4 points each)



a. SA= _____
 b. SA= _____
 c. SA= _____
 d. SA= _____

V= _____
 V= _____
 V= _____
 V= _____

e. Truck's tank is stainless steel cylinder. Find the surface area and volume of tank



e. SA= _____

V= _____

f. Following table provide information for small, medium, and large cup. Complete the missing information.



Small

Medium

Large

	Volume (oz)	Volume (cubic in)	Height	radius
Small		28.875 cubic in	5 inches	
Medium		37.898 cubic inches		1.42
Large		54.141 cubic inches	8 inches	

1 cubic inch = 0.554 112 554 1 ounce



6. Find surface area and volume of pyramids (24 points, 4 points each)

- Draw a net for a scale model of one of the pyramids. Describe your scale.
- Cut out the net and fold it to form a pyramid.
- Find the lateral surface area of the real-life pyramid.

a. Cheops Pyramid in Egypt

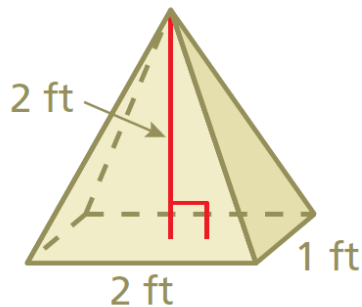


Side = 230 m, Slant height \approx 186 m

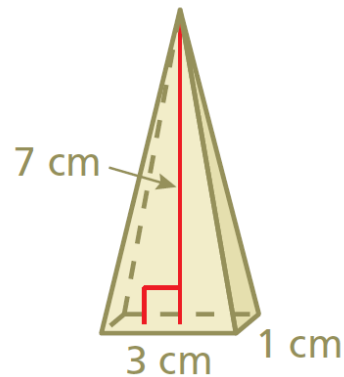
b. Muttart Conservatory in Edmonton



Side = 26 m, Slant height \approx 27 m



c.



d.

a. SA= _____

V= _____

b. SA= _____

V= _____

c. SA= _____

V= _____

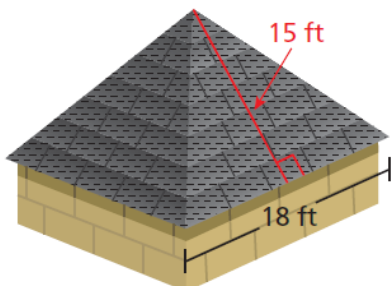
d. SA= _____

V= _____

A roof is shaped like a square pyramid. One bundle of shingles covers 25 square feet. How many bundles should you buy to cover the roof?

The base of the roof does not need shingles. So, find the sum of the areas of the lateral faces of the pyramid.

e.



e. SA= _____

Bundle of shingles: _____

f.

Bottle A
\$9.96

Bottle B
\$14.40

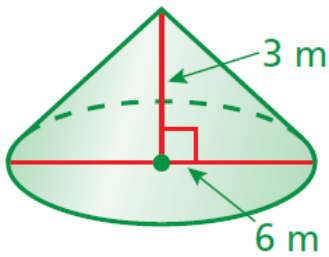
How many times more sunscreen is in Bottle B than in Bottle A?
Which is the better buy?

Bottle A is a square pyramid with a height of 6 in. and a base side length of 2 in. Bottle B is a square pyramid with a height of 4 in. and a base side length of 3 in. Both bottles are labeled 'SUNSCREEN' and 'COCONUT PARADISE'.

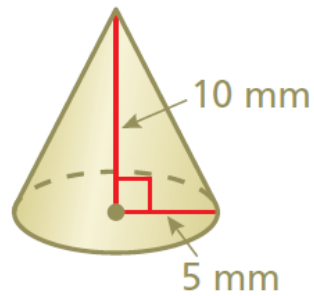
Answer= _____

Answer= _____

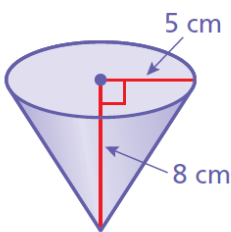
7. Find Surface area and volume of cones. (24, 4 points points)



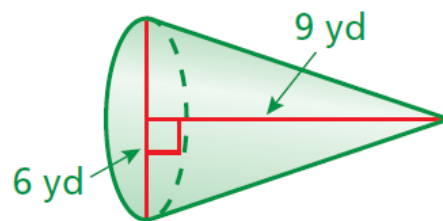
a.



b.



c.



d.

a. SA= _____

V= _____

b. SA= _____

V= _____

c. SA= _____

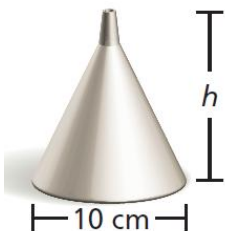
V= _____

d. SA= _____

V= _____

Find the height of each cone given its volume.

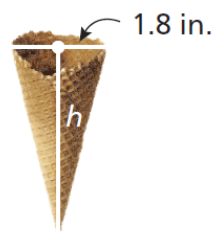
$$\text{Volume} = 225 \text{ cm}^3$$



e.

e. height = _____

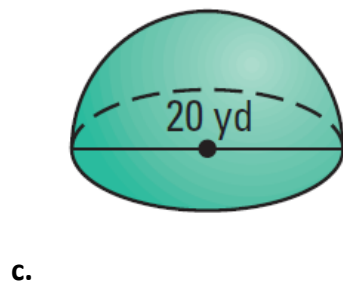
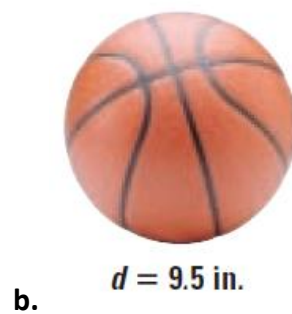
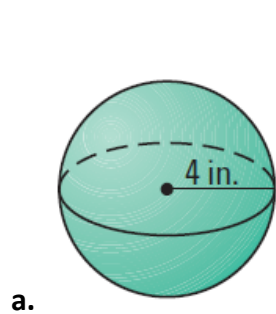
$$\text{Volume} = 3.6 \text{ in.}^3$$



f.

f. height = _____

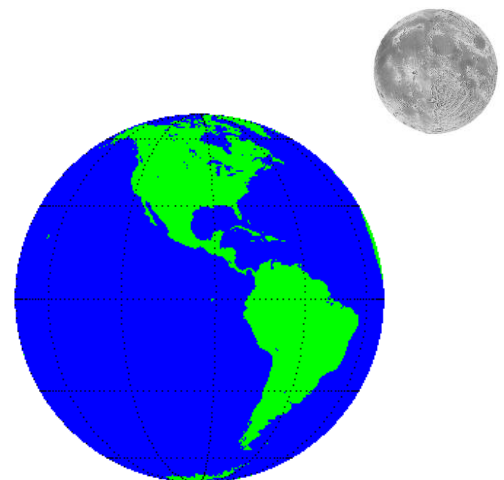
8. Find the surface area and volume of a sphere. (22 points, a-d 4 points, e 6 points)



- e1. Find the surface area of Earth.
Find the surface area of Earth's moon.
- e2. Compare the surface areas of Earth and its moon.
- e3. About 70% of Earth's surface is water. How many square miles of water are on Earth's surface?

**Moon's radius:
about 1080 miles**

**Earth's radius:
about 3960 miles**



a. SA= _____

V= _____

b. SA= _____

V= _____

c. SA= _____

V= _____

d. SA= _____

V= _____

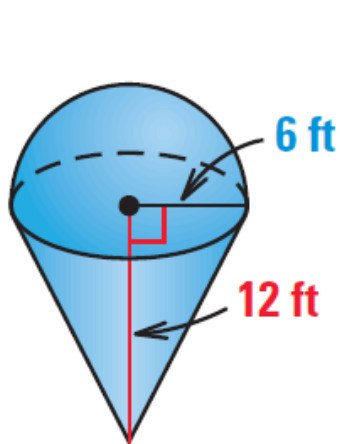
e1. SA (earth)= _____

SA (moon)= _____

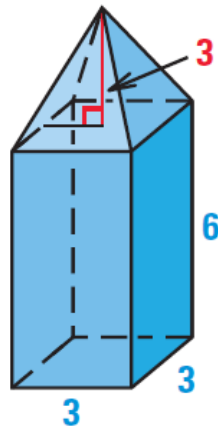
e2. _____

e3. _____

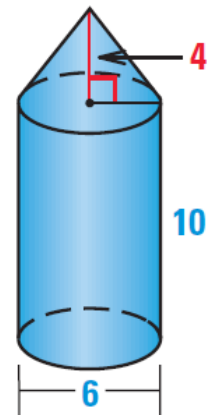
9. Find Surface area and Volume of any 5 composite figures. (40 points, 8 points each)



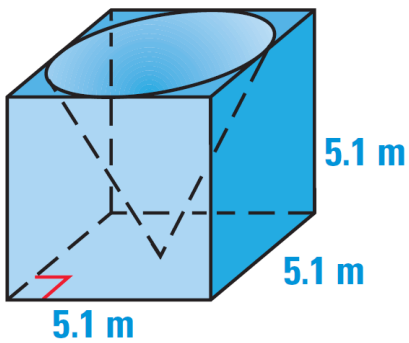
a.



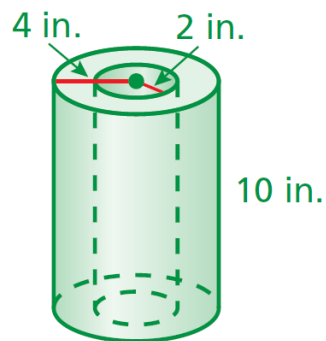
b.



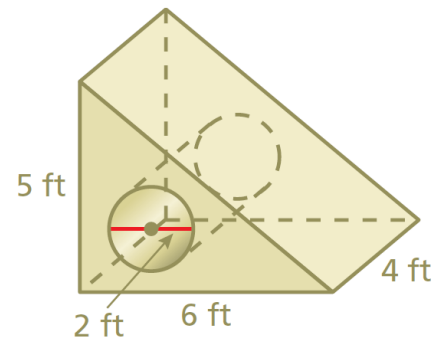
c.



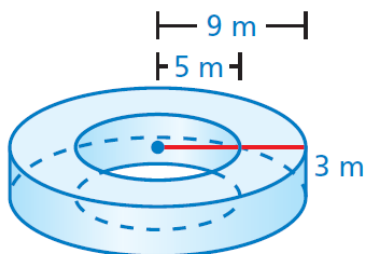
d.



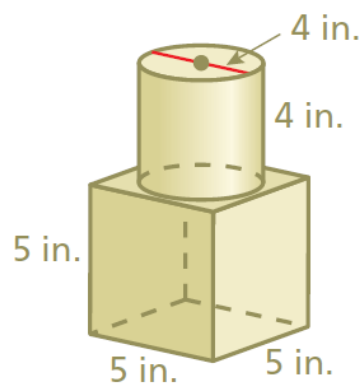
e.



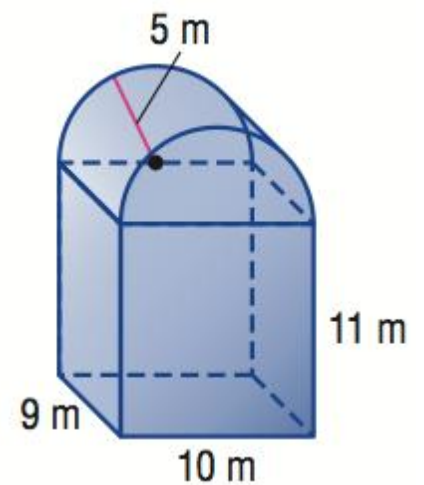
f.



g.



h.



i.

9. Surface area and volume of composite figures KEY

a. SA= _____ V= _____

b. SA= _____ V= _____

c. SA= _____ V= _____

d. SA= _____ V= _____

e. SA= _____ V= _____

f. SA= _____ V= _____

g. SA= _____ V= _____

h. SA= _____ V= _____

i. SA= _____ V= _____